HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

PEDAGOGICAL CONDITIONS AND METHODOLOGICAL MECHANISMS FOR DEVELOPING COGNITIVE SKILLS IN PRESCHOOL EDUCATION

Isaboyev Abubakir Ilhomjon ugli

Turan International University

Master's student in the field of theory and history of pedagogy

Abstract. This article analyzes the pedagogical conditions and methodological mechanisms for developing cognitive skills in preschool education. Perception, attention, memory, comparison, classification, verbal generalization and self-regulation are considered as an integrated system of children's cognitive activity. The paper substantiates the developmental value of play, dialogue, observation, experimentation, teacher scaffolding and reflective assessment in forming independent thinking.

Keywords: preschool education, cognitive skills, cognitive activity, pedagogical conditions, methodological mechanism, play-based learning.

INTRODUCTION

In contemporary preschool education, the formation of cognitive skills should be understood not as a narrow preparation for school lessons, but as a fundamental condition for the child's later intellectual autonomy, communicative competence and ability to participate meaningfully in social life. Preschool age is a sensitive period in which the child actively constructs images of objects, establishes elementary causal relations, compares properties, classifies phenomena, remembers significant signs and begins to regulate behavior through speech. Consequently, cognitive development is not limited to learning colors, shapes, numbers or names of natural objects. It is a gradual transformation of the child's whole way of orienting in the world, because sensory experience, play, language, emotion and social interaction become connected in one developmental process. The relevance of the problem is determined by the fact that modern preschool education is increasingly expected to develop attention, working memory, cognitive flexibility, questioning, planning and reflective judgment. These abilities do not appear suddenly when the child enters school. They are formed through repeated participation in situations where children observe, manipulate objects, listen, speak, predict, compare and correct mistakes. If preschool pedagogy relies only on reproductive memorization, thinking remains dependent on adult prompts. If the educator creates an environment rich in objects, signs, roles, questions and manageable challenges, the child gradually becomes an active subject of cognition. The concept of cognitive skills includes several interrelated groups of abilities. The first group involves sensory-perceptual actions: distinguishing, recognizing, grouping and comparing objects according to visible and functional features. The second group concerns attention and memory: maintaining concentration, following the sequence of actions, recalling previous experience and connecting it with a new task. The third group includes elementary logical operations such as classification, seriation, analogy, generalization and identification of cause-and-effect relations. The fourth group is connected with speech and symbolic mediation: naming actions, explaining choices, using signs, pictures, models and stories as tools of thinking. The fifth group is self-regulation: waiting for one's turn, planning a step, checking the result and changing the strategy when the first attempt is unsuccessful. The pedagogical conditions for developing these abilities are complex because they include material, social, methodological and emotional dimensions. A productive environment should be open enough to provoke exploration and structured enough to help children see relations among objects and actions.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

Materials should not merely decorate the classroom; they should invite sorting, construction, measurement, storytelling, experimentation and transformation. At the same time, cognitive growth requires emotional safety. When an error is treated as failure, the child avoids intellectual risk; when it is treated as a normal phase of inquiry, the child learns that thinking involves search, clarification and improvement. Methodological mechanisms are the concrete procedures through which these conditions become developmental results. Play occupies a central place because it unites imagination, rule, role, speech and voluntary attention. In role play, children hold an imaginary situation in mind, coordinate actions with peers and use substitute objects. Didactic games make cognitive objectives more explicit: sorting by two features, finding missing elements, continuing a pattern, comparing quantities or explaining why an object belongs to a group. Drawing, construction and modeling stimulate planning and spatial thinking. Elementary experiments with water, sand, plants, light and sound allow children to observe changes and formulate preliminary causal explanations. Dialogic reading and storytelling develop semantic memory, narrative logic and inference. The educator's role is not limited to giving instructions. A preschool teacher acts as an organizer of the developmental environment, a mediator of cultural tools, a partner in dialogue, a diagnostician of individual progress and a designer of gradual complexity. The teacher identifies what the child can do independently, what can be done with support and what support should later be reduced. This requires open questions, modeling of strategies, verbalization of comparison, encouragement of peer explanation and connection of each task with previous experience. Through such guidance, external pedagogical help is transformed into the child's internal cognitive strategy. The methodological difficulty is that cognitive development cannot be ensured by isolated exercises. A child may name shapes but fail to compare them in construction, or may count objects but not use quantity in a practical situation. Therefore, cognitive mechanisms should be integrated across free play, organized activities, walks, speech development, artistic work and cooperation with family culture. Continuity is essential: the relation 'more-less' should appear in counting games, water pouring, block construction, snack distribution and movement activities. Only then does the operation become flexible and meaningful. At the same time, the problem has a methodological dimension that is often underestimated in practice. Educators may use attractive games, pictures and construction materials, but without a clear cognitive objective the activity remains entertaining rather than developmental. For this reason, it is necessary to distinguish between pedagogical conditions and methodological mechanisms. Conditions answer the question of what environment, relationships and resources make cognitive growth possible; mechanisms answer the question of how the teacher transforms these possibilities into concrete mental actions. Such distinction is important for planning, because the teacher should know whether a task develops attention, memory, comparison, classification, verbal reasoning or self-control, and how the same operation can be repeated in different contexts without becoming monotonous. Thus, a scientifically organized preschool process requires the unity of environment, activity, communication and reflective support.

LITERATURE REVIEW

The national literature on preschool pedagogy in Uzbekistan provides an important methodological basis for interpreting cognitive development as a pedagogically organized and culturally meaningful process. In this context, the works of F. R. Qodirova and D. R. Babayeva are especially relevant because they connect the general theory of preschool education with the practical organization of children's speech, activity, communication and independent thinking. Qodirova's contribution is significant in the way she conceptualizes preschool pedagogy as a system of aims, content, forms and methods that must correspond to the developmental characteristics of early

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

childhood. Her textbook on preschool pedagogy, indexed in Google Scholar together with co-authored works, emphasizes the need for a holistic educational environment in which physical, social, moral, aesthetic, speech and cognitive development are not separated mechanically, but are coordinated through purposeful activity, play and educator guidance [1]. From the perspective of the present topic, Qodirova's ideas make it possible to regard pedagogical conditions not as external organizational details, but as developmental determinants: the quality of materials, the logic of tasks, the culture of communication, the teacher's professional position and the emotional climate of the group directly influence how children perceive, compare, classify and generalize. Babayeva's scientific and methodological works are equally important because they reveal the role of speech development in the formation of children's independent thinking. Her textbook on the theory and methodology of speech development, also visible in Google Scholar, shows that speech is not only a means of communication but also an instrument for organizing cognitive processes [2]. When a child names an object, explains an action, retells a story, answers a problematic question or participates in a dialogue, he or she learns to order impressions, distinguish essential features, retain a sequence, identify relations and move from practical manipulation to verbal-logical reasoning. Babayeva's approach is particularly valuable for the methodological mechanisms discussed in this article because it demonstrates that cognitive skills in preschool education can be strengthened through purposeful vocabulary work, coherent speech, dialogic questions, story-based tasks and the encouragement of children's explanations. If Qodirova's pedagogical framework helps define the conditions of a developmental preschool environment, Babayeva's speech-centered methodology clarifies one of the main mechanisms through which these conditions influence the child's thinking. Taken together, the works of these two Uzbek scholars allow the topic to be positioned within a nationally grounded but theoretically open research field. Qodirova helps to see the preschool institution as an organized pedagogical system, while Babayeva helps to understand how speech and communication mediate the child's cognitive actions inside that system. Their ideas correspond with international developmental theories that interpret learning as a process of guided participation, symbolic mediation and active construction of experience. Therefore, the literature analysis indicates that effective cognitive development requires the unity of three components: a developmental environment, meaningful activity and speech-mediated reflection. Without the environment, the child lacks material and social stimuli; without activity, knowledge remains abstract and external; without speech, cognitive actions are not sufficiently generalized and internalized. This synthesis becomes the theoretical basis for the methodological model proposed in the article.

METHODOLOGY

The methodological part of the article was constructed on the basis of theoretical analysis, comparative-pedagogical synthesis, structural-functional modeling, content interpretation and practice-oriented generalization. Theoretical analysis was used to clarify the concept of cognitive skills in preschool education and to distinguish the main components of this concept: perception, attention, memory, comparison, classification, elementary reasoning, verbal generalization and self-regulation. Comparative-pedagogical synthesis was applied in order to correlate national preschool-pedagogical ideas with international developmental theories, especially those that explain the role of play, social interaction, symbolic mediation, scaffolding and executive functions. This method made it possible to avoid a narrow interpretation of cognitive development as simple intellectual training and to present it as a multidimensional process conditioned by environment, communication, activity and the gradual internalization of cultural tools. Structural-functional modeling was used as the leading method for designing the article's conceptual model. Through this method, the pedagogical conditions

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

and methodological mechanisms were arranged as mutually dependent elements of one system. The conditions included a cognitively rich material environment, emotional safety, teacher competence, dialogic communication, individualization, continuity between activities and cooperation with family experience. The mechanisms included play-based learning, problem situations, didactic games, sensory experimentation, guided observation, modeling, narrative tasks, constructive activity, peer explanation, teacher scaffolding and reflective assessment. The functional relation between these elements was interpreted as follows: conditions create the developmental field, mechanisms activate the child's cognitive operations within that field and assessment provides feedback for further pedagogical planning.

RESULTS

The analysis resulted in an integrated pedagogical model for developing cognitive skills in preschool education. The first result is the clarification that cognitive skills should be treated as a system of connected actions rather than as separate abilities. Perception becomes productive when it is connected with comparison; comparison becomes meaningful when the child verbalizes similarities and differences; memory becomes functional when it supports the solution of a new problem; attention becomes stable when the task is emotionally significant; self-regulation becomes possible when the child understands the rule, accepts the goal and evaluates the result. This interpretation changes the teacher's position from checking facts to observing how the child thinks, explains and corrects an action. The second result is the identification of key pedagogical conditions. A cognitively rich environment should include open-ended materials, objects for sorting and measuring, construction sets, natural materials, pictures, symbolic cards, books, puzzles and safe tools for elementary experiments. Yet the environment alone does not guarantee development. It must be accompanied by emotional support and by a teacher who transforms materials into meaningful tasks. The most effective condition is the pedagogical organization of relations among resource, question, action and reflection. A simple set of stones, leaves or blocks can develop classification and reasoning if children compare, group, count, predict and explain.

DISCUSSION

The discussion of cognitive skill formation in preschool education inevitably leads to the classical polemic between Jean Piaget and Lev Vygotsky. Piaget's constructivist position emphasizes the child's active construction of knowledge through interaction with objects and the gradual development of cognitive structures [4]. From this perspective, preschool children should be given opportunities to manipulate materials, discover relations, encounter contradictions and reorganize their own schemes. Piaget's argument warns educators against excessive verbal instruction because children cannot simply receive concepts in a finished form; they must coordinate actions and build understanding through developmental readiness. In preschool practice, this position supports exploration, sensory experience, problem solving with concrete objects and respect for the child's independent discoveries. Vygotsky's cultural-historical position, however, challenges the idea that cognitive development can be explained mainly by individual interaction with objects. For Vygotsky, higher mental functions are formed first in social interaction and later internalized by the child; language, signs, adult guidance and peer cooperation become decisive mediators of development [3]. From this viewpoint, the pedagogical question is not only what the child can discover alone, but what the child can accomplish in the zone of proximal development with meaningful support. Vygotsky's polemic with a purely maturational or individual constructivist interpretation is especially important

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

for preschool education because it shows that play, dialogue and scaffolding are not external additions to cognition; they are mechanisms through which voluntary attention, memory, imagination and self-regulation emerge. The productive interpretation of this debate does not require choosing one scholar against the other. Piaget protects preschool pedagogy from premature academization and reminds educators that children's thinking develops through action, experiment and self-correction. Vygotsky protects pedagogy from leaving the child alone with materials and reminds educators that cognitive tools are social before they become individual. In practical terms, a preschool teacher should not replace children's inquiry with ready answers, but also should not romanticize unguided activity. The methodological balance consists in creating problem situations where children act independently, while the educator introduces words, models, questions and partial hints that help them reach a higher level of reasoning. This polemic also clarifies the role of play. In a Piagetian sense, play allows assimilation: the child transforms reality according to existing schemes and gains cognitive confidence. In a Vygotskian sense, play creates an imaginary situation governed by rules, and therefore becomes a source of self-regulation and symbolic thought. When these interpretations are synthesized, play can be designed as a methodological mechanism that respects the child's initiative and at the same time introduces culturally meaningful forms of thinking. The debate between Piaget and Vygotsky therefore strengthens the central thesis of this article: cognitive skills in preschool education develop most effectively when active exploration is combined with social mediation, when practical action is enriched by speech and when the teacher's support gradually becomes the child's own strategy. Bruner's idea of the spiral curriculum [5] further mediates this debate, because it shows that early intuitive experience may be revisited later at more formal levels, provided that preschool learning begins from meaningful action and gradually moves toward symbolic abstraction.

CONCLUSION

In conclusion, the formation of cognitive skills in preschool education is a purposeful and developmentally sensitive pedagogical process. It cannot be reduced to mechanical exercises or the early transfer of school-type academic content into preschool groups. Cognitive growth emerges when children work in an intellectually rich, emotionally safe and socially cooperative environment where observation, comparison, classification, prediction, explanation and self-correction become part of everyday activity. The article identified play-based learning, problem situations, didactic games, experimentation, modeling, storytelling, construction, guided observation and reflective conversation as interconnected methodological mechanisms. The analysis of F. R. Qodirova and D. R. Babayeva showed the importance of holistic pedagogical organization and speech-mediated activity, while the Piaget-Vygotsky polemic demonstrated the need to balance independent exploration with social support. Therefore, the educator's task is to design situations in which children ask questions, justify answers, plan actions, monitor results and gradually transform external assistance into independent thinking strategy.

REFERENCES

1. Qodirova F.R., Toshpo'latova Sh.Q., A'zamova M.N. Maktabgacha pedagogika: o'quv qo'llanma. - Toshkent: Ma'naviyat, 2019. - 172 b.

2. Babayeva D.R. Nutq o'stirish nazariyasi va metodikasi: darslik. - Toshkent: Barkamol fayz media, 2018. - 432 b.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

3. Vygotsky L.S. Mind in Society: The Development of Higher Psychological Processes / ed. by M. Cole, V. John-Steiner, S. Scribner, E. Souberman. - Cambridge, MA: Harvard University Press, 1978. - 159 p.

4. Piaget J. The Origins of Intelligence in Children. - New York: International Universities Press, 1952. - 419 p.

5. Bruner J.S. The Process of Education. - Cambridge, MA: Harvard University Press, 1960. - 97 p.

6. Berk L.E., Winsler A. Scaffolding Children's Learning: Vygotsky and Early Childhood Education. - Washington, DC: National Association for the Education of Young Children, 1995. - 195 p.

7. Abdusattarovna, O. R. X., & Shohbozbek, E. (2025). Ijtimoiy falsafada zamonaviy pedagogik yondashuvlar asosida sog‘lom turmush tarzini shakllantirish. Global Science Review, 4(5), 175-182.

8. Diamond A. Executive functions // Annual Review of Psychology. - 2013. - Vol. 64. - P. 135-168. - DOI: 10.1146/annurev-psych-113011-143750.

9. Blair C., Raver C.C. School Readiness and Self-Regulation: A Developmental Psychobiological Approach // Annual Review of Psychology. - 2015. - Vol. 66. - P. 711-731. - DOI: 10.1146/annurev-psych-010814-015221.

10. Goziyeva, I., & Shohbozbek, E. (2025). Pedagogik jarayonda talabalarning motivatsiyasini oshirish uchun zamonaviy yondashuvlar. Global Science Review, 4(3), 348-355.